

CLAIMS

1. A method of making lithium-intercalateable electrodes for batteries comprising the step of:

(A) applying a film-forming slurry to an electrically-conductive grid, said slurry comprising a plurality of said lithium-intercalateable particles dispersed throughout a mixture including polymeric binder; and

(B) thereafter, drying the slurry, thereby forming an electrode.

2. The method of claim 1 further including the step of:

forming the film-forming slurry to further include a plasticizer for the binder and a solvent, wherein the drying step comprising the substep of removing the solvent.

3. The method of claim 2 further comprising the step of removing said plasticizer so as to leave a network of pores pervading said binder.

4. The method of claim 3 further comprising the step of backfilling said pores with a lithium-ion-conductive electrolyte.

5. A method of making lithium-intercalateable electrodes for a lithium-ion battery with polymeric separators comprising the steps of:

(A) applying a first film-forming slurry onto a first face of an electrically conductive grid, said first film comprising a plurality of lithium-intercalateable particles dispersed throughout a mixture of a polymeric binder compatible with said battery and a plasticizer for said binder;

(B) applying a second film-forming slurry to a second face of said grid opposite said first face, said second film comprising a plurality of said lithium-intercalateable particles dispersed throughout a mixture of said binder, said plasticizer and a solvent for said binder;

(C) thereafter, drying said electrode by removing said solvent;

(D) removing said plasticizer from said binder so as to leave a network of pores pervading said binder; and

(E) backfilling said pores with a lithium-ion-conductive electrolyte.

6. The method according to claim 5 including heating said electrode to effect said drying.

7. The method according to claim 6 including the step of pressing said first and second films together while said films are still warm from said heating.

8. A method of making lithium-intercalateable electrodes for a lithium-ion battery with polymeric separators comprising the steps of:

- 5 (A) forming a first film comprising of plurality of said lithium-intercalateable particles dispersed throughout a mixture of a polymeric binder compatible with said battery, a plasticizer for said binder, and a solvent for said binder;
- (B) drying said first film by removing said solvent;
- (C) embedding a first face of an electrically conductive grid into said first film;
- 10 (D) applying a film-forming slurry to a second face of said grid opposite said first to form a second film overlying said first film, said slurry comprising a plurality of said lithium-intercalateable particles dispersed throughout a mixture of said binder, said plasticizer and said solvent whereby said solvent from said slurry dissolves at least some of said binder in said first film, and promotes solvent bonding
- 15 of said first and second films to each other and to said grid;
- (E) thereafter drying said electrode by removing said solvent;
- (F) removing said plasticizer from said mixture so as to leave a network of pores pervading said binder; and
- (G) backfilling said pores with a lithium-ion-conductive electrolyte.

9. The method according to claim 8 wherein said grid is embedded in said first film before said first film is dried.

10. The method according to claim 8 wherein said grid is embedded in said first film after said first film is dried.

11. The method according to claim 10 including the step of heating said grid prior to said embedding.

12. The method according to claim 10 including heating said first film and grid during said embedding.

13. A method of making lithium-intercalateable electrodes for a lithium-ion battery with polymeric separators comprising the steps of:

(A) simultaneously applying (i) a first film-forming slurry onto a first face of an electrically conductive grid comprising a plurality of lithium-intercalateable particles dispersed throughout a mixture of a polymeric binder compatible with said battery and a plasticizer for said binder; and (ii) a second film-forming slurry to a second face of said grid opposite said first face comprising a plurality of said lithium-intercalateable particles dispersed throughout a mixture of said binder, said plasticizer and a solvent for said binder;

(B) thereafter, drying said electrode by removing said solvent to form respective first and second films;

(C) removing said plasticizer from said binder so as to leave a network of pores pervading said binder; and

(D) backfilling said pores with a lithium-ion-conductive electrolyte.

14. The method according to claim 13 including heating said electrode to effect said drying.

15. The method according to claim 14 including the step of pressing said first and second films together while said films are still warm from said heating.